

(FILE 'USPAT' ENTERED AT 14:49:33 ON 12 JUL 1999)

L1 2 S SUESSEN TWIST  
L2 1211 S (RING OR WRAP) (A) (SPIN OR SPINNING OR SPUN)  
L3 0 S L1 (P) L2  
L4 8 S SUESSEN(P) L2

=> d 1-

1. 5,478,624, Dec. 26, 1995, Synthetic yarn with heat-activated binder fiber; Robert A. Lofquist, 428/97; 26/8R; 28/214; 57/236, 255, 282; 139/399 [IMAGE AVAILABLE]
2. 5,182,154, Jan. 26, 1993, Stain resistant nylon carpets; Randolph C. Blyth, et al., 428/96, 97, 375, 378, 395 [IMAGE AVAILABLE]
3. RE 33,365, Oct. 2, 1990, Stain resistant nylon fibers; Randolph C. Blyth, et al., 428/97, 395 [IMAGE AVAILABLE]
4. 4,892,558, Jan. 9, 1990, Process for dyeing stain resistant nylon carpets; Randolph C. Blyth, et al., 8/560; 428/96, 97 [IMAGE AVAILABLE]
5. 4,879,180, Nov. 7, 1989, Stain-resistant nylon fibers; Randolph C. Blyth, et al., 428/395 [IMAGE AVAILABLE]
6. 4,871,604, Oct. 3, 1989, Binder powder carpet fiber; Lewis R. Hackler, 428/96; 156/72; 427/189, 195, 208.2; 428/87, 95, 97, 370, 372 [IMAGE AVAILABLE]
7. 4,839,212, Jun. 13, 1989, Stain resistant nylon carpets; Randolph C. Blyth, et al., 428/96, 97, 395 [IMAGE AVAILABLE]
8. 4,680,212, Jul. 14, 1987, Stain resistant nylon fibers; Randolph C. Blyth, et al., 428/97, 395 [IMAGE AVAILABLE]

=> d 6 hit

US PAT NO: 4,871,604 [IMAGE AVAILABLE]

L4: 6 of 8

SUMMARY:

BSUM(8)

Cut-pile carpet is customarily produced from staple yarns or bulked continuous filament yarn. For example, staple fiber is conventionally carded, pinned, and spun or **wrap spun** into a singles yarn, which typically is twisted and plied with similar yarn to form a 2-ply or 3-ply yarn construction. This yarn is twist set by utilizing one of several commercially available twist setting processes. In a typical process the yarn is passed through a heated chamber, while in a relaxed condition. The temperature of this process step is crucial to the proper twist setting of the base fiber, to obtain desired properties of the final carpet product. For nylon-6 base fiber, the conditions for this step are typically 195-200.degree. C. with a residence time of about 60 seconds for the **Suessen** process and about 135-140 .degree. C. with a residence time of about 60 seconds for the Superba process.

> d 1-

1. 5,478,624, Dec. 26, 1995, Synthetic **yarn** with heat-activated **binder fiber**; Robert A. Lofquist, 428/97; 26/8R; 28/214; 57/236, 255, 282; 139/399 [IMAGE AVAILABLE]
2. 4,942,089, Jul. 17, 1990, Rapidly shrinking fiber and water-absorbing shrinkable **yarn** and other materials comprising same; Tsuneo Genba, et al., 428/364; 57/238, 252, 255; 264/185 [IMAGE AVAILABLE]
3. 4,809,493, Mar. 7, 1989, Water-absorbing shrinkable **yarn**; Tsuneo Genba, et al., 57/238, 252, 255; 604/376 [IMAGE AVAILABLE]
4. 4,667,463, May 26, 1987, Process and apparatus for making fasciated **yarn**; Koich Minorikawa, et al., 57/328; 19/0.39, 0.46, 0.58; 28/240, 245; 57/200, 210, 243 [IMAGE AVAILABLE]
5. 4,644,741, Feb. 24, 1987, Mop **yarns** made by **fiber bonding** process; J. Gary Gradinger, et al., 57/256; 15/229.1; 57/238, 242, 257, 297; 156/148, 158; 428/375, 394, 396 [IMAGE AVAILABLE]
6. 4,509,321, Apr. 9, 1985, Apparatus for manufacturing fasciated **yarn**; Koji Kajita, et al., 57/328, 333 [IMAGE AVAILABLE]
7. 4,356,690, Nov. 2, 1982, Fasciated **yarn**; Koichi Minorikawa, et al., 57/210; 19/0.35, 3, 35; 28/240, 245; 57/200, 243, 252, 256; 428/359, 375 [IMAGE AVAILABLE]